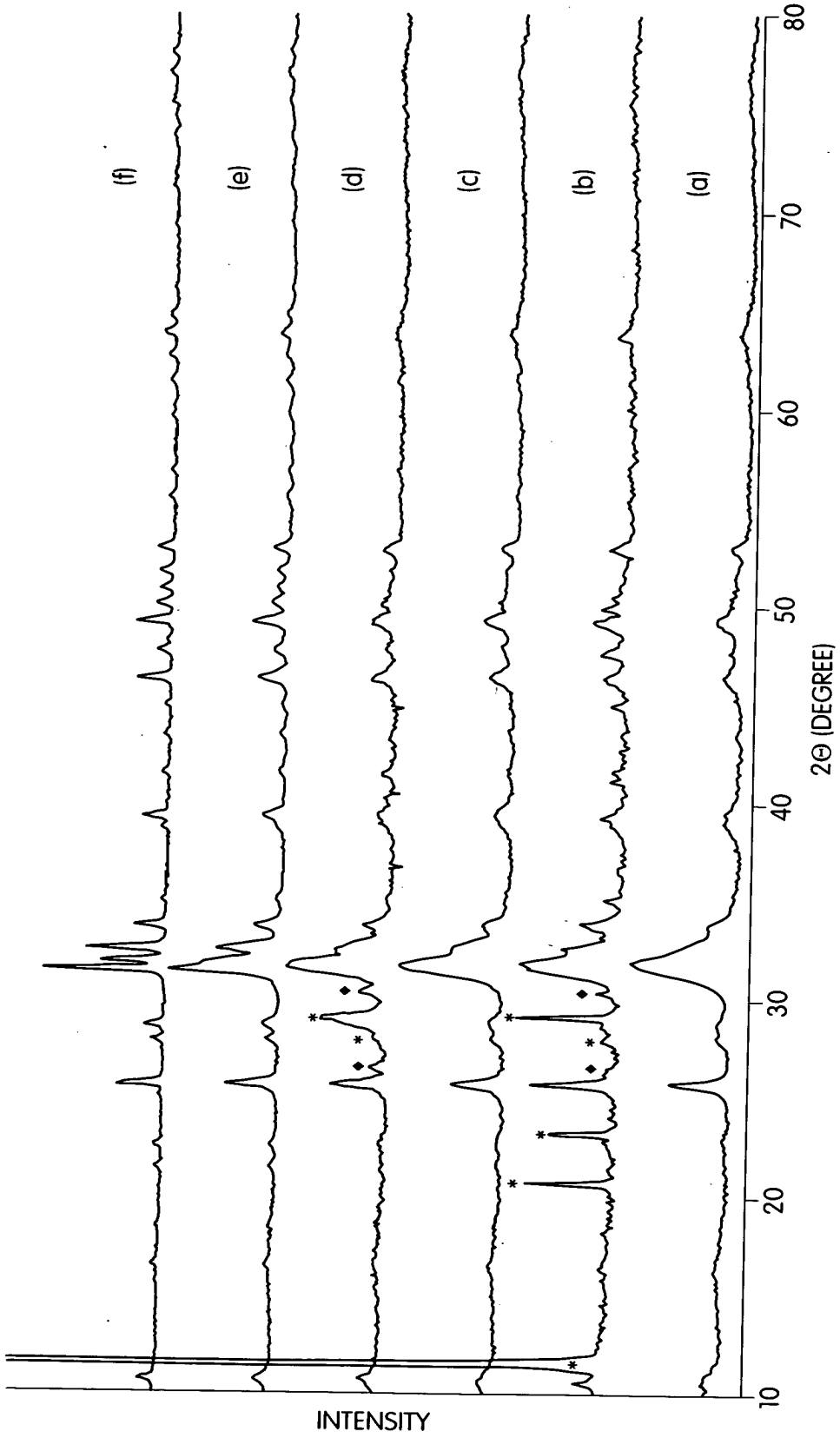

Fig. 1

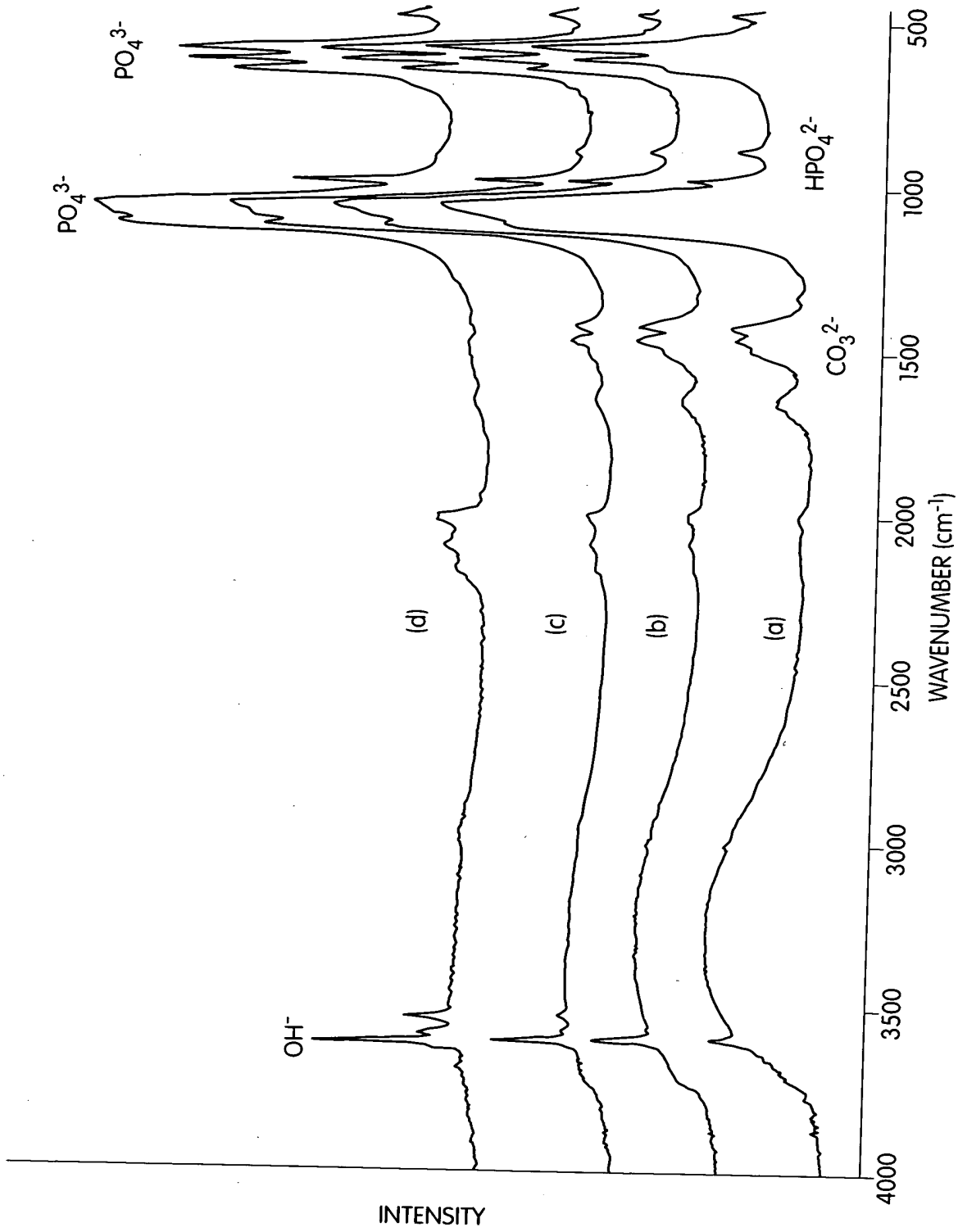
PO_4^{3-}
PO_4^{3-}
HPO_4^{2-}
CO_3^{2-}
OH^-
(d)
(c)
(b)
(a)
4000
3500
3000
2500
2000
1500
1000
500
WAVENUMBER (cm^{-1})
INTENSITY

Fig. 2

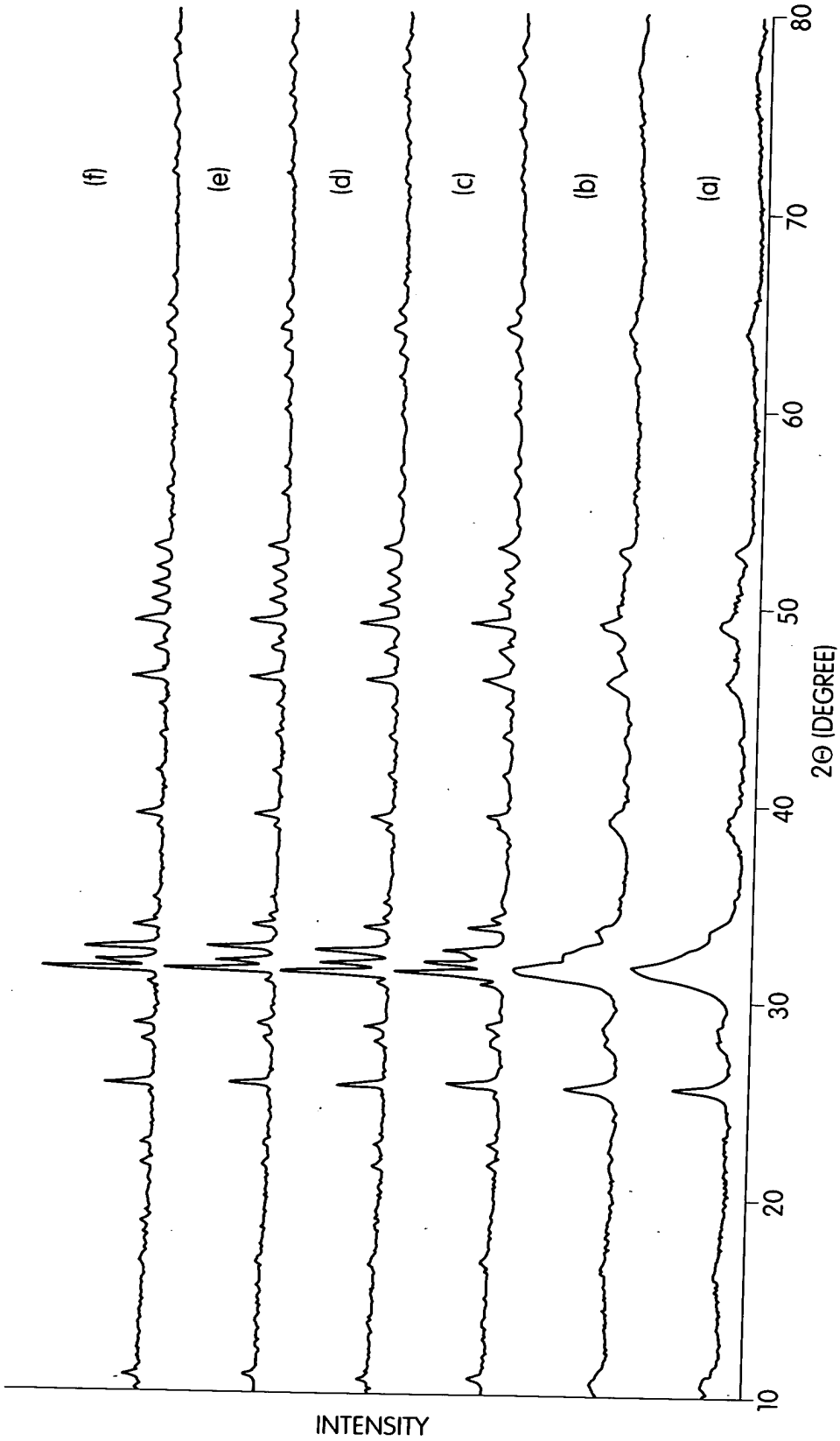

Fig. 3

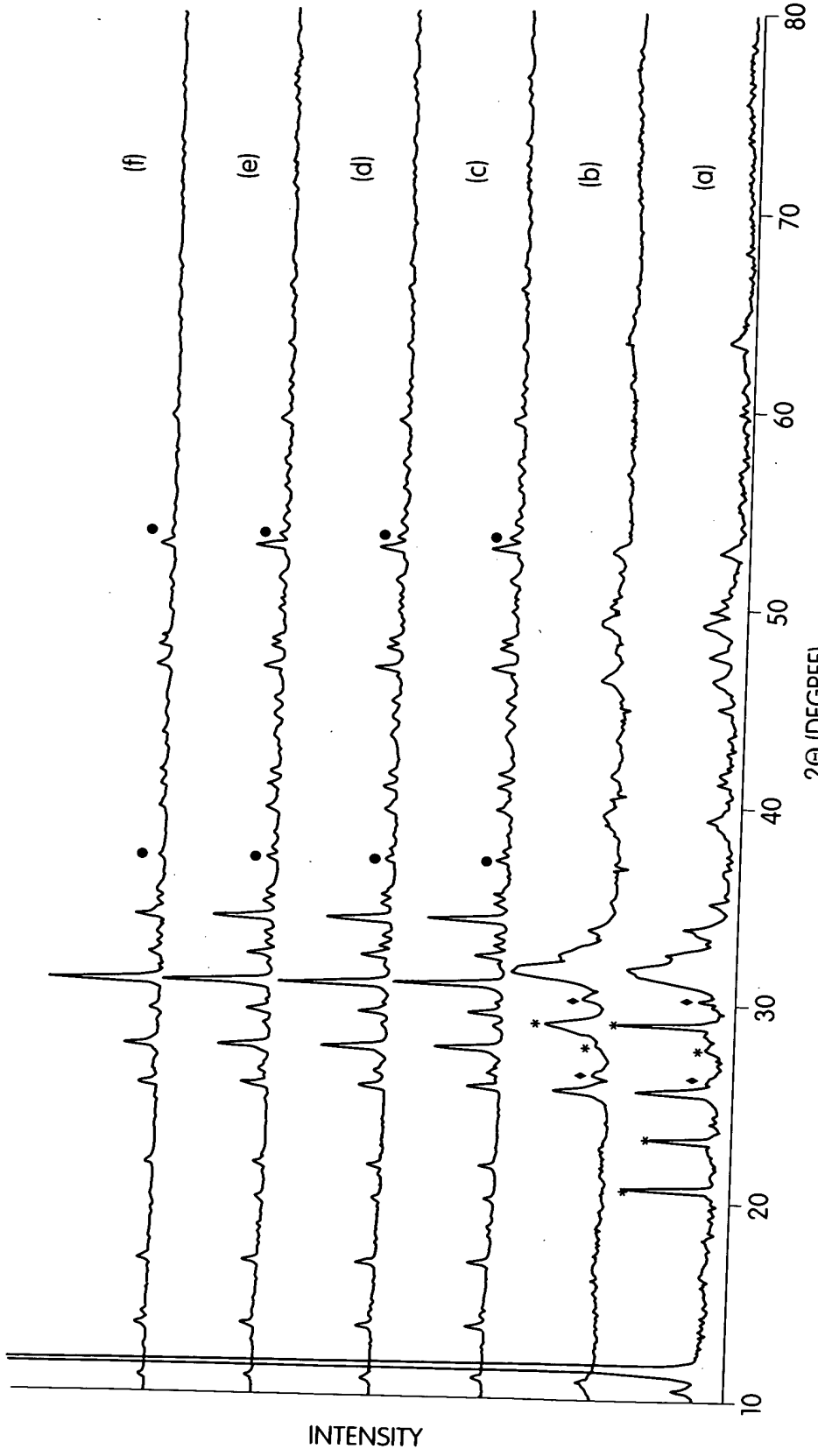

Fig. 4

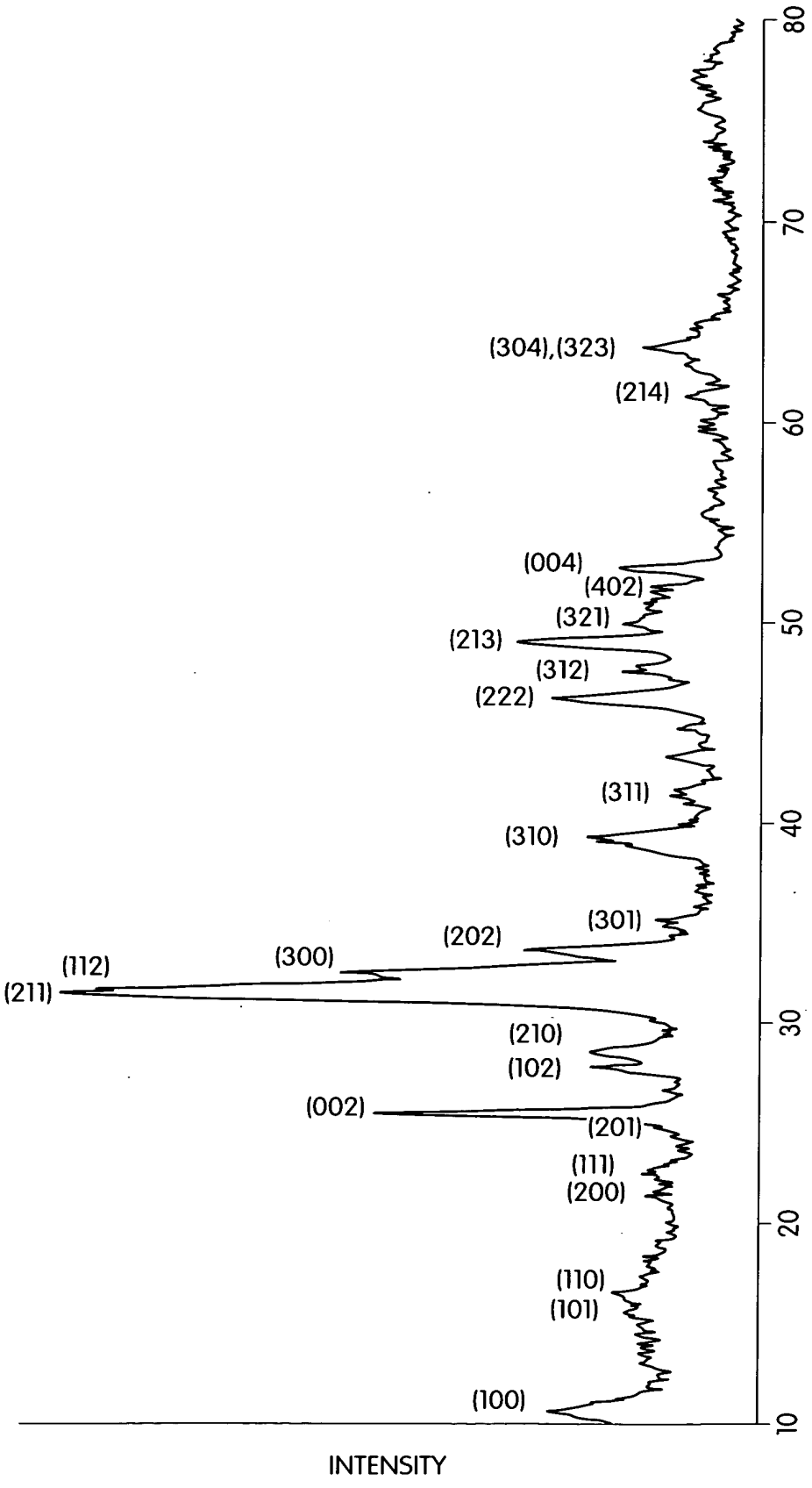
(304),(323)
(214)
(004)
(402)
(321)
(213)
(312)
(222)
(311)
(310)
(301)
(202)
(300)
(112)
(211)
(210)
(102)
(002)
(201)
(111)
(200)
(110)
(101)
(100)
INTENSITY
10
20
30
40
50
60
70
80
2Θ (DEGREE)

Fig. 5

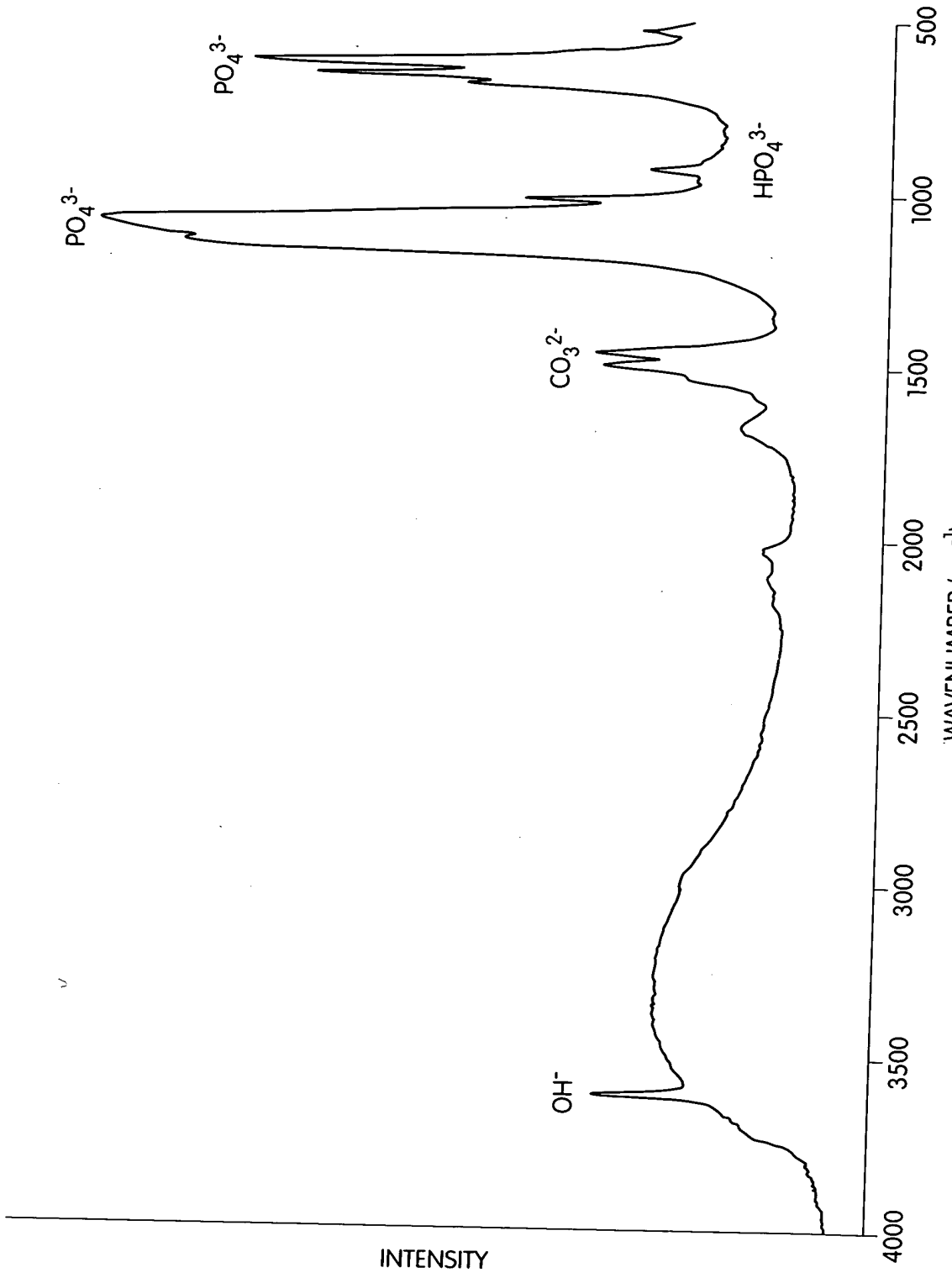
PO_4^{3-}
PO_4^{3-}
HPO_4^{3-}
CO_3^{2-}
OH^-
INTENSITY
4000
3500
3000
2500
2000
1500
1000
500
WAVENUMBER (cm^{-1})

Fig. 6